

REMARKS

Claims 1-13, 33 and 35 are pending.

Claims 1-13, 33 and 35 stand rejected.

Claims 1, 33 and 35 have been amended.

Claims 14-32, 34 and 36-37 were canceled without prejudice or disclaimer of the subject matter recited therein, to be pursuable in a continuing application, in the response to Restriction Requirement filed by applicants February 14, 2002.

Formal Matters

Prior to responding to the rejections over the cited references, Applicants note that certain of the claims have been amended simply to improve clarity. In clarifying the claim language, these amendments are not intended to limit the scope of the claims, unless the claim language is explicitly referred to in the following arguments to distinguish over one or more of the cited references.

Applicants also note that Claim 36 was canceled in the response to Restriction Requirement filed February 14, 2002. Thus, Applicants respectfully assert that the rejection as to claim 36 is moot, as claim 36 is no longer pending in the instant application.

Rejection of Claims under 35 U.S.C. §102

Claims 1, 3, 4, 6, 8-13, 33 and 35 are rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,324,162B1 to Chaudhuri (Chaudhuri). While not conceding that this reference is prior art, but instead to expedite prosecution, Applicants have chosen to traverse-in-part and in-part overcome the Examiner's rejection by amendment. Applicant's amendment is made without prejudice to Applicant's right to establish, for example in a continuing application, that the reference is not prior to an invention now or hereafter claimed. Thus, the Examiner's reconsideration of this rejection is respectfully requested.

The claimed invention, as set forth by independent claim 1, relates to a method of operating a network, and specifically, to provisioning a virtual path between a first node and a

second node of the nodes making up the network. Importantly, this provisioning has been amended to recite discovering a physical path from the first node to the second node by dynamically identifying any intermediary nodes comprising said physical path. The operation of the network dynamically identifies intermediary nodes using the protocol packets described in the specification of the present application. Thus, a network according to the claimed invention dynamically determines the physical path over which the virtual path will be provisioned.

In contrast, the network of Chaudhuri uses pre-computed paths when restoring a failed link, illustrating two differences between the claimed invention and Chaudhuri. Most importantly, Chaudhuri provides fast restoration of a link by first attempting a “‘localized’ restoration” (Abstract, line 6). If the “‘localized’ restoration” cannot be accomplished, Chaudhuri’s technique then attempts to restore the failed link using a “pre[-]computed path,” which are “pre-stored in the end-point nodes to enable the end-point nodes to effect rapid restoration” (Abstract, lines 9-15; See also Col. 2, Lines 23-32) This use of pre-computed paths is noted in the Office Action, as well. (Office Action, page 5, last paragraph)

The distinction between the claimed invention and Chaudhuri is thus apparent. The present invention uses a dynamic technique to effect provisioning via any number of nodes in the given network. Chaudhuri neither discloses nor suggests dynamic restoration, much less dynamic provisioning, as required by independent claim 1. In contrast, Chaudhuri uses a static technique, pre-computing and pre-storing the alternate paths at the end point nodes for later use by the end-point nodes in restoring a failed link.

Moreover, the provisioning has also been amended to recite establishing the virtual path by dynamically configuring a set of connections between the first, second and any intermediary nodes. Again, Chaudhuri neither discloses nor suggests such dynamic configuration, depending, as before, on pre-computed and pre-stored alternate paths to support later use by end-point nodes in restoring a failed link.

In similar fashion, claims 33 and 35 have been amended to recite such dynamic path identification and configuration. The network of claim 33 now recites a network that is configured to dynamically identify any intermediary nodes of said physical path, as well as

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being configured to establish the virtual path by virtue of being configured to dynamically configure a set of connections between said nodes of said physical path. Similarly, claim 35 now recites a network that includes discovering means for discovering a physical path from the first node to the second node by dynamically identifying any intermediary nodes of said physical path, as well as establishing means for establishing the virtual path by dynamically configuring a set of connections between the nodes of the physical path.

Accordingly, each of the independent claims 1, 33 and 35 clearly distinguish over Chaudhuri. The claims dependent upon independent claim 1, dependent claims 3, 4, 6 and 8-13, also distinguish over Chaudhuri for at least the same reasons as independent claim 1, from which they depend. Applicants therefore respectfully submit that claims 1, 3, 4, 6, 8-13, 33 and 35 are in condition for allowance, and so respectfully request withdrawal of the rejection based upon 35 U.S.C. §102(e).

Rejection of Claims under 35 U.S.C. §103

Claims 5 and 7 are rejected under 35 U.S.C. §103(a) as being obvious in view of U.S. Patent No. 6,324,162B1 to Chaudhuri (Chaudhuri). While not conceding that this reference is prior art, but instead to expedite prosecution, Applicants have chosen to traverse the Examiner's rejection.

With regard to claim 5, Chaudhuri does not fairly show, teach or suggest to one of skill in the art that intermediary links, once allocated between the first, second and intermediary nodes, can be made available for re-use upon deallocation, after the intermediary links have been deallocated (upon termination of the virtual path), as recited by claim 5, as well as the claims from which claim 5 depends. This is because Chaudhuri not only fails to show, teach or suggest re-use of deallocated links, but further does not even show, teach or suggest the deallocation of links.

With regard to claim 7, Chaudhuri does not fairly show, teach or suggest to one of skill in the art that intermediary links, once allocated between the first, second and intermediary nodes, can be made available for re-use upon deallocation, after the intermediary links have been deallocated (upon termination of the virtual path by the sending of a termination message along the physical path), as recited by claim 7, as well as the claims from

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which claim 7 depends. This is because Chaudhuri not only fails to show, teach or suggest re-use of deallocated links, but further does not even show, teach or suggest the deallocation of links by the sending of a termination message along the physical path.

While the Office Action characterizes as obvious the availability of one or more intermediate links connecting end-point nodes upon the sending of a termination message, the Office Action continues by stating that it would have been obvious to connect the rest of the intermediate links between Chaudhuri's end-point nodes in order to obtain shortest paths between end-point nodes. This statement misapprehends the claimed invention.

First, no such termination message is shown, taught or suggested by Chaudhuri, there being no need for such a message in a system that uses pre-computed alternate paths. Second, Applicants fail to understand how the claimed termination message could be used to obtain shortest paths between end-point nodes. The claimed termination message is used in the claimed invention to deallocate links allocated to the virtual path, and has no bearing on the length of the path between the first and second nodes.

Thus, Applicants respectfully assert that Chaudhuri neither discloses nor suggests, taken alone or in combination with other references and/or skill in the art, that intermediary links can be made available for re-use upon deallocation. Accordingly, each claims 5 and 7 clearly distinguish over Chaudhuri, even in light of the ordinary skill in the art. Applicants therefore respectfully submit that claims 5 and 7 are in condition for allowance, and so respectfully request withdrawal of the rejection based upon 35 U.S.C. §103(a) in their regard.

Claim 2 is rejected under 35 U.S.C. §103(a) as being obvious in view of U.S. Patent No. 6,324,162B1 to Chaudhuri (Chaudhuri), in further view of U.S. Patent No. 6,041,037 to Nishio, et al. (Nishio). As above, while not conceding that Chaudhuri is prior art, but instead to expedite prosecution, Applicants have chosen to traverse the Examiner's rejection.

Neither Chaudhuri nor Nishio discloses or suggests, taken alone or in combination with each other and/or skill in the art, testing the virtual path by testing each one of the intermediary nodes and the intermediary links as a single circuit. Nishio discloses checking whether the virtual paths 420 to 422 share the transmission source switching terminal. (Col.

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16, Lines 51-52) Thus, ATM virtual path switching node 402 makes a determination as to whether to switch virtual paths 450-451 from virtual paths 420-422 to stand-by virtual paths 420-422 (Col. 16, Lines 58-64), and so merely determines how the virtual paths are connected, rather than their operational state. By contrast, the claimed invention tests the virtual path by testing each one of said intermediary nodes and said intermediary links as a single circuit, determining the virtual path's operational state as a whole by testing the components of its physical path.

Thus, Applicants respectfully assert that Chaudhuri and Nishio neither disclose nor suggest, taken together or in combination with other references and/or skill in the art, testing the virtual path by testing each one of the intermediary nodes and the intermediary links as a single circuit. Accordingly, each claim 2 clearly distinguishes over Chaudhuri and Nishio, taken together or in combination with other references and/or skill in the art. Applicants therefore respectfully submit that claim 2 is in condition for allowance, and so respectfully request withdrawal of the rejection based upon 35 U.S.C. §103(a) in this regard.

CONCLUSION

In view of the amendments and remarks set forth herein, the application is believed to be in condition for allowance and a notice to that effect is solicited. Nonetheless, should any issues remain that might be subject to resolution through a telephonic interview, the examiner is invited to telephone the undersigned.

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Box Non-Fee Amendment, Commissioner For Patents, Washington, D.C. 20231, on June 19, 2002.

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6/19/02
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Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Specification

The paragraph starting on page 1, line 5 is amended as follows.

This application is related to Patent Application No. [(____ Attorney Ref. No. M-7165 US ____)] 09/232,395, entitled " A CONFIGURABLE NETWORK ROUTER," having A. Saleh, H. M. Zadikian, J. C. Adler, Z. Baghdasarian, and V. Parsi as inventors and filed concurrently herewith. This related application is assigned to [Monterey Networks, Inc.] Cisco Technology, Inc., the assignee of the present invention, and is hereby incorporated by reference in its entirety.

In the Claims

1. (Twice Amended) A method of operating a network, the network comprising[:]
a plurality of nodes coupled by a plurality of optical links, comprising:
provisioning a virtual path between a first node and a second node of said plurality of nodes, wherein said provisioning comprises:
identifying said first node and said second node of said plurality of nodes,
discovering a physical path from said first node to said second node by
[**automatically**] dynamically identifying any intermediary nodes
comprising said physical path, and
establishing said virtual path by dynamically configuring a set of connections
between said first node, said second node, and said intermediary nodes,
if any, using intermediary links of said plurality of links.
33. (Amended) An optical network comprising:
a plurality of optical links;
a plurality of nodes, each one of said plurality of nodes coupled to at least one other of
said plurality of nodes by at least one of said plurality of optical links, wherein

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said nodes are configured to provision a virtual path between a first node and a second node of said plurality of nodes by virtue of being configured to:
identify said first node and said second node of said plurality of nodes,
discover a physical path from said first node to said second node by virtue of
being configured to [**automatically**] dynamically identify any
intermediary nodes of said physical path, and
establish said virtual path by virtue of being configured to dynamically
configure a set of connections between said nodes of said physical path.

35. (Twice Amended) A network comprising:

a plurality of nodes coupled by a plurality of optical links, wherein said plurality of nodes are configured to provision a virtual path between a first node and a second node of said plurality of nodes, wherein each of said plurality of nodes comprises:

identifying means for identifying said first node and said second node of said plurality of nodes,

discovering means for discovering a physical path from said node to said second node by [**automatically**] dynamically identifying any intermediary nodes of said physical path, and

establishing means for establishing said virtual path by dynamically configuring a set of connections between said nodes of said physical path.

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